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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/523,426	01/28/2005	Frank Cornelis Penning	NL 020704	1850

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EXAMINER	
GOMA, TAWFIK A	

ART UNIT	PAPER NUMBER
2627	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/523,426	PENNING ET AL.	
	Examiner	Art Unit	
	TAWFIK GOMA	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 March 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14 and 16-18* is/are rejected.

7)☒ Claim(s) *15* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This action is in response to the amendments filed on 3/28/2008.

Specification

The amendment to the abstract filed on 3/28/2008 have been considered and are entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. (hereinafter "Kim"), US Patent No. 6,724,696 B2 in view of Burroughs (hereinafter "Burroughs"), US Patent No. 6,657,926 B2.

Regarding claim 1, Kim discloses an actuator comprising: an actuator base (fig. 4, element 100), a platform (fig. 4, element 107), a plurality of spring wires movably coupling said platform to said actuator base (fig. 4, elements 10, 20, 30, and 40), and wherein one of said spring wires is electrically conductive (col. 4, lines 19-32).

Kim .fails to disclose at least one writing coil supported by said platform and at least one of said spring wires is connected in series with said writing coil such as to effectively act as a conductor for writing coil drive signals.

In the same field of endeavor, Burroughs discloses a magneto-optical system read/write pickup comprising a writing coil mounted to the bottom of the objective lens holder (fig. 2,

element 108; col. 2, line 21-25). Kim teaches actuators are used to control the focusing, tracking, and tilt directions of an objective lens holder mounted on a suspended platform supported by electrically conductive spring wires. Burroughs teaches a writing coil mounted to the bottom of an objective lens holder, but fails to teach said lens holder is mounted on a suspended platform. All the component parts, namely the objective lens holder mounted on a suspended platform supported by a plurality of conductive spring wires as disclosed by Kim and the writing coil mounted to the bottom ot an objective lens holder as disclosed by Burroughs, are known. The only difference is the combination of the "old elements" into a single device by mounting them onto a suspended platform.

Thus, it would have been obvious to one skilled in the art at the time the invention was made to mount the objective lens holder and writing coil as taught by Burroughs onto the suspended platform as taught by Kim by known methods with no change in their respective functions and the combination of the writing coil mounted to the objective lens holder and the suspended platform would have yielded predictable results of adjusting the objective lens in the focus, tracking, and tilt direction while reading/writing data to the magneto-optical recording medium.

Burroughs implies the writing coil be connected in series through a conductor to receive high-speed switching signals (drive signals) in order to write data to the magneto-optical recording medium (col. 3, lines 8-9, see also col. 4, lines 28-31). Kim teaches a device which uses electrically conducting spring wires connected in series with the actuator coils (Fig. 7) to send control signals to the actuator coils from the actuator drivers (Fig. 6). It would have been obvious to one skilled in the art at the time the invention was made to drive the writing coil as

taught by Burroughs using an electrically conducting spring wire produced in the device of Kim to pass write signals from the writing coil driver to the writing coil as implied by Burroughs. Using the known technique of sending control signals through an electrically conducting spring wire to send drive (writing) signals to a writing coil would have been obvious to one of ordinary skill.

Regarding claim 2, Kim further discloses said actuator has at least one actuator coil supported by said platform (fig. 4, element 122); wherein at least one of said spring wires is electrically conductive and is connected in series with said actuator coil such as to effectively act as conductor for actuator coil drive signals (fig. 7, elements 122, col. 4, lines 10-18).

Claims 3-12 and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim and Burroughs as applied to claim 1 above, and further in view of Janz (hereinafter "Janz"), US Patent No 6,219,193 B1.

Regarding claim 3, Kim and Burroughs in combination or alone fail to disclose at least one of said spring wires effectively acts as common conductor for writing coil drive signals as well as actuator coil drive signals.

In the same field of endeavor, Janz discloses an apparatus which combines actuator drive signals and the write coil drive signals on a set of common conductors (col. 8, lines 64 to col. 9, line 6).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify the combined apparatus of Kim and Burroughs to use one of said electrically conductive spring wires as a common conductor to send writing coil drive signals as

well as actuator coil drive signals, motivation being to reduce the number of conductors and soldering connections (col. 3, lines 37-41)

Regarding claim 4, Kim further teaches an actuator wherein: a first electrically conductive spring wire is coupled to a first terminal of a focus actuator coil and to a.first terminal of a tracking coil (fig. 7, element 44), a third electrically conductive spring wire is coupled to a second terminal of said focus actuator coil (fig. 7, elements 13 and 120), a fourth electrically conductive spring wire is coupled to a second terminal of said tracking actuator coil (fig. 7, elements 23 and 122).

The combination of Kim and Burroughs teaches said electrically conductive spring wire is connected to said writing coil, therefore it would have been obvious to one skilled in the art to have said first electrically conductive spring wire coupled to a first terminal of said writing coil and to have a second electrically conductive spring wire coupled to a second terminal of said writing coil.

Regarding claims 5-8, claims 5 through 8 are variations in electrical connections of the same parts, namely the focus actuator coil, the tracking actuator coil, and the writing coil. All of the component parts are known in Kim and Burroughs. The only difference is the electrical connections of the focus actuator coil, the tracking actuator coil, and the writing coil by rearranging the "old elements." Thus, it would have been obvious to one having Ordinary skill in the art to rearrange the electrical connections of the focus actuator coil, the tracking actuator coil, and the writing coil, since each component can be used in combination without altering its primary operation of adjusting the platform in the focusing and tracking direction and writing data to the recording medium. In re Japikse, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950).

Regarding claim 9, Burroughs further teaches a filter (fig. 4, element 206) comprising: an input coupled to said at least one common conductor (fig. 4, element 202); at least one first output coupled to said at least one actuator coil (fig. 4, element 208); a least one second output coupled to said at least one writing coil (fig. 4, element 212); wherein said filter is adapted to substantially pass relatively low-frequency signals to said first output and to substantially pass relatively high-frequency signals to said second output (col. 7, lines 66 to col.8, line 3). Regarding claim 10, Burroughs discloses said relatively low-frequency signals and said relatively high-frequency signals but fails to provide a frequency range of about 10 kHz and 100 MHz for each signal, respectively. The Examiner takes Official Notice that relatively low-frequency signals is in the range of about 30 kHz to about 300 kHz and high-frequency signals are in the range of about 3 MHz to about 30 MHz is old and well known in the art. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to have recognized the relatively low-frequency range and relatively high-frequency range as disclosed by Burroughs is within the frequency range claimed by the applicant.

Regarding claim 11, Burroughs further teaches said filter comprises a filter capacitor (fig. 4, element 246), connected to in series between a first input • terminal (fig. 4, element 202) and a first terminal of the second output (fig. 4, element 212), and wherein a first terminal of the first output (fig. 4 element 208) is preferably connected to said first input terminal (fig. 4, element 202).

Regarding claim 12, Burroughs teaches said filter characteristics are chosen to pass relatively low-frequency control signals to the actuator (fig. 4, element 140) while removing relatively high-frequency signals meant for the write element (fig. 4, element 138). Thus, it is

implicit that a first resonant frequency (transition frequency) will essentially occur when the parallel combination of the filter capacitance (fig. 4, element 246) and the inductance of the actuator (fig. 4, element 244) effectively cancel each other and a second resonant frequency will occur when the inductance value of the actuator (fig. 4, element 244) and the parasitic capacitance of the actuator (fig. 4, element 240) in parallel effectively cancel each other. Furthermore, it is required that said first resonant frequency is lower than said second resonant frequency for the filter (fig. 4, element 206) to properly filter out the relatively high-frequency signals and pass the relatively low- frequency control signals to the actuator.

Regarding claims 13 and 14, Kim in view of Burroughs and Janz fail to disclose wherein the first transition frequency is higher than 1 Khz, the second transition frequency is lower than 100 Mhz, wherein the actuator coil has a resistance of 8.5 K ohms, wherein the actuator coil has a parasitic capacitance of 31 pf; and wherein said filter capacitor has a capacitance value in the range of 8 - 300 nF. It would have been obvious to one having ordinary skill in the art at the time the invention was made to set the transition frequencies to 1 Khz and 100 Mhz, the resistance to 8.5 K ohms, the parasitic capacitance to 31pf, and the capacitance having a value of 8 – 300 nf. The motivation would have been to select the values for the electrical components in the course of routine engineering optimization/experimentation. Moreover, absent a showing of criticality, i.e., unobvious or unexpected results, the relationships set forth in claims 13-14 are considered to be within the level of ordinary skill in the art.

Additionally, the law is replete with cases in which the mere difference between the claimed invention and the prior art is some range, variable or other dimensional limitation within the claims, patentability cannot be found.

It furthermore has been held in such a situation, the applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range(s); see *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

Moreover, the instant disclosure does not set forth evidence ascribing unexpected results due to the claimed dimensions; see *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338 (Fed. Cir. 1984), which held that the dimensional limitations failed to point out a feature which performed and operated any differently from the prior art.

Regarding claim 16, the combination of Kim and Burroughs further teaches a magneto optical recording apparatus comprising: receiving means for receiving and rotating a magneto-optically recordable disc (see Kim, col. 1, lines 23-33); controllable optical means for directing a controlled laser beam to a portion of the disc (see Burroughs, fig. 2, col. 2, lines 36-38); controllable magnetizing means for applying controlled magnetic field to an area of the disc (fig. 2, element 108, col. 2, lines 40-45); and an actuator according to claim 1 are met by the combination of Kim, Burroughs, and Janz as above.

Regarding claim 17, Janz further discloses a filter (fig. 3, element 206) suitable for mounting on a movable platform (fig. 3, element 110) comprising: an input (fig. 4, element 202,204); at least one first output for coupling to. an actuator coil (fig. 4, element 208); the filter being suitable for receiving actuator coil drive signals as well as writing coil drive signals at its input (fig. 4, element 216), for separating said signals from each other (col. 7, line 66 to col. 8, line 16), and for outputting said actuator coil drive signals at said first output (col. 7, lines 37-54) and for outputting said writing coil drive signals at said second output (fig. 4, element 212).

Regarding claim 18, Janz further discloses said filter comprising: a filter capacitor (fig. 4, element 246), connected in series between a first input terminal (fig. 4, element 202) and a first terminal of the second output (fig. 4, element 212); the filter preferably having a first terminal of the first output connected to said first input terminal (fig. 4, element 208).
Janz does not disclose said filter capacitor preferably having a capacitance value substantially in the order of about 10 nF.

However, Janz teaches the filter capacitor parameters are chosen appropriately to so as to remove low-frequency components of the superimposed control and write signals and pass substantially only the high frequency write signals to the write element (col. 7, line 66 to col. 8, line 3). Finding an optimal value for the capacitor depends on the inductance of the actuator coils and the operating frequency of the control and write signal which can be obtained through well known methods and routine experimentation. In re Aller, 220 F.2d 454,456, 105 USPQ 233,235 (CCPA 1955).

Allowable Subject Matter

The indicated allowability of claims 13-14 is withdrawn in view of the amendments to the claim limitations of claims 13 and 14. Rejections based on the amended claims are provided above.

Claim15 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

Applicant's arguments filed 3/28/2008 have been fully considered but they are not persuasive. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

In the instant case, the combination of Kim, which teaches an actuator mounted on a base such that the spring wires are connected in series with the actuator coils (fig. 7) to send control signals to the actuators, and Burroughs which discloses providing a writing coil for a magneto-optical pickup relies only on the knowledge of one of ordinary skill in the art at the time of the applicant's disclosure of the use of connecting spring wires in series with coils and providing a writing coil for a magneto-optical disc.

First, applicant's argument that Burroughs provides no suggestion that a spring wire is connected in series with the writing coil is not persuasive because Burroughs discloses that the magnetic field of the writing coils is modulated (col. 3, lines 5-8). The magnetic field induced by and inductive coil is modulated by changing the amount of current flowing through the coil, which requires a series connection with the particular write coil driver. Furthermore, Kim discloses that a series connection is required to control actuator coils, and that spring wires are used in order to improve the assembly, and the same series connection with a spring wire would

be required in the combination of Kim and Burroughs in order to also control the writing coil. Finally, there is no support for applicant's interpretation that a writing coil must be connected differently than actuator coils. This interpretation is contrary to the above disclosures of both Kim and Burroughs.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection of claims 13 and 14 presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TAWFIK GOMA whose telephone number is (571)272-4206. The examiner can normally be reached on 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Feild can be reached on (571) 272-4090. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Joseph H. Feild/
Supervisory Patent Examiner, Art Unit 2627

/Tawfik Goma/
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